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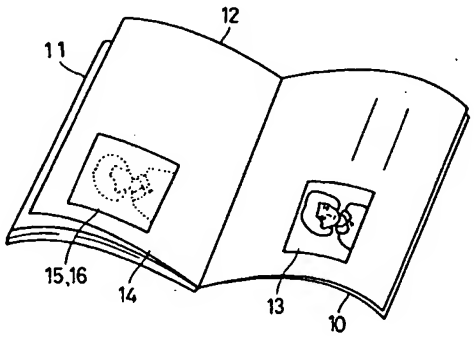
(54) **Engraved face photograph display sheet, face photograph display sheet and certificate for use with the same sheets.**

(57) A face photograph display sheet (12) to be collated with an identification face photograph (13) attached in a passport and so on. The display sheet is composed of a synthetic resin sheet or of a synthetic resin sheet and a colored base layer (2). A face photograph (15,16) is engraved with density gradation on the display sheet according to the identification face photograph, and the face photograph (15,16) engraved on the synthetic resin sheet is an engraved image, and the face photograph on the colored base layer is two-tone. The display sheet can be inserted and fastened in the passport (10) and so on.

FIG.3



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BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to an engraved face photograph display sheet and a face photograph display sheet to be collated with an identification face photograph, and a certificate for use with the sheets, and more particularly, to an engraved face photograph display sheet, a face photograph display sheet and a certificate for use with the sheets which can be inserted together with sheets, on which necessary articles are mentioned, into an identification notebook, such as a passport, a certificate or the like.

In the present invention, besides the passport, a stock certificate, a bankbook, a personal check, a car registration certificate and the like are given as examples of the identification certificate.

Description of the Related Art

Conventionally, a face photograph, which is attached to various kinds of certificates, such as a passport, is taken by the applicant, pasted on a prescribed sheet of a certificate, sealed to prevent forgery, and covered with a transparent sticker.

However, since the photograph tends to peel in the above adhesion method, it is possible that the certificate will be forged or altered by exchanging the photograph for another photograph. For example, if a traveler has his passport stolen or has lost his passport, the passport may be abused and the traveler may sustain an unexpected loss.

SUMMARY OF THE INVENTION

In order to solve the above conventional problem, the inventor of the present invention conducted various examinations and found that it was possible to easily judge whether an adhering photograph is exchanged for another photograph and to perfectly prevent forgery by engraving a face photograph or a two-tone (for example, black and white or brown and white) photograph on a synthetic resin sheet according to a face photograph adhering at the time of application, so that the inventor has developed the present invention.

An object of the present invention is to provide a face photograph display sheet to be collated with an identification face photograph, in which a face photograph with density gradation is engraved on a surface layer at a predetermined portion of a synthetic resin sheet.

Another object of the present invention is to provide a face photograph display sheet to be collated with an identification face photograph, in which a colored engraving base layer is buried in a synthetic resin sheet and forms a smooth plane connected to the sheet as a unit, and in which a face photograph with density gradation is engraved on the colored engraving base layer.

Still another object of the present invention is to provide a certificate, such as a passport, in which an engraved face photograph display sheet or a face photograph display sheet having the above arrangement is inserted and fastened.

In an engraved face photograph display sheet of the present invention, a face photograph with density gradation is directly engraved on a surface layer at a predetermined portion of a synthetic resin sheet. In a face photograph display sheet of the present invention, a colored engraving base layer is buried in a synthetic resin sheet and forms a smooth plane connected to the sheet as a unit and a face photograph with density gradation is engraved (engraved with two colors, such as black and white) on the colored engraving base layer.

Therefore, even if an adhering face photograph is exchanged for another photograph, it is possible to easily execute identification and to completely prevent forgery by collating and comparing (checking in the same manner as a normal engraved printing) the face photograph with an engraved face photograph displayed on an engraved face photograph display sheet or a face photograph display sheet of the present invention.

Furthermore, in the present invention, a face photograph is directly engraved on a surface layer at a predetermined portion of a synthetic resin sheet, and a two-tone, such as black and white, image (face photograph) engraved on a colored engraving base layer is buried in the synthetic resin sheet and forms a smooth plane connected to the sheet as a unit. Therefore, the sheet has high durability, is more unlikely to be damaged by friction compared with the case in which the photograph is pasted on the sheet, and can withstand long use.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a partial enlarged sectional view showing an example in which a colored engraving base layer is disposed on a synthetic resin sheet;

Fig. 2 is a partial enlarged sectional view showing the state in which the colored engraving base layer is attached by heat and pressure;

Fig. 3 is a perspective view showing the state in which a passport is open; and

Fig. 4 is a view of a structure of a conventional known engraving apparatus.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention will be now described in more detail with reference to the illustrated embodiments. However, the present invention is not limited to these embodiments.

Figs. 1 and 2 are sectional views showing an embodiment of a process of producing the present invention, and Fig. 3 is a perspective view showing the state in which a passport is open.

First, a face photograph display sheet 12 is formed in the same shape as each sheet 11 in a passport 10 shown in Fig. 3 by using a synthetic resin sheet approximately 0.1 to 0.2mm in thickness. Then, an engraved face photograph 15 with density gradation is engraved at a proper portion of the face photograph display sheet 12 by means of a conventional known engraving apparatus, described below, based on a photograph 13 attached in the same manner as on a conventional passport. As a result, a passport in which the engraved face photograph display sheet is inserted and fastened can be produced.

In the above case, the face photograph is directly engraved on a surface layer at a predetermined portion of the synthetic resin sheet. Next, the case, in which a colored engraving base layer is unitedly buried in a synthetic resin sheet and a face photograph is engraved on the colored engraving base layer, will be described.

In the same manner as above, a face photograph display sheet 12 is formed in the same shape as each sheet 11 in a passport 10 by using a synthetic resin sheet 1 of approximately 0.1 to 0.2mm in thickness. Then, as shown in Fig. 1, a colored engraving base layer 2 is mounted on the face photograph display sheet 12 (the synthetic resin sheet 1). In order to mount the colored engraving base layer, a method of applying paints, ink composite or the like or a printing method, such as offset printing, can be used. Next, as shown in Fig. 2, the face photograph display sheet 12 provided with the colored engraving base layer 2 is applied with heat and pressure by means of a heating plate, a heating roller or the like so as to bury the colored engraving base layer 2 into the face photograph display sheet 12 (the synthetic resin sheet 1) and form a smooth plane unitedly composed of the colored engraving base layer 2 and the face photograph display sheet 12 (the synthetic resin sheet 1).

After that, a face photograph 16, which is a black and white shaded image with density gradation, is engraved at a proper portion 14 of such face photograph display sheet 12 by means of a conventional known engraving apparatus, described below, according to a photograph 13 attached in the same manner as in a conventional passport, so that a passport in which the face photograph display sheet is inserted an fastened can be produced.

Fig. 4 is a structural view of a conventional known engraving apparatus and shows the mechanism for engraving an engraved face photograph or a face photograph at a proper portion of a sheet according to a photograph document. The apparatus is disclosed in Japanese Patent Publication (Kokoku) No.54-31410, No.54-25451 and so on.

As shown in Fig. 4, numeral 21 denotes a scanning head provided with a light source lamp and a multiplication tube, and numeral 22 denotes an engraving head provided with an engraving stylus which vibrates up and down. A document pedestal 23 for laying a photograph document 28 thereon and an engraving pedestal 24 for laying a sheet 29 thereon are respectively disposed under both heads 21 and 22 and connected to a swing arm 26 through a swing lever 25.

In the above arrangement, a spotlight from the light source in the scanning head 21 shines a point on the photograph document 28, the light reflected from the point enters the light multiplication tube, and photoelectric current in accordance with the amount of the light reflected from the photograph document 28, that is, the shade of the photograph document 28 arises. The photoelectric current passes through a proper calculation amplification circuit and controls the degree to which the stylus of the engraving head 22 cuts into the sheet 29 (precisely, the colored engraving base layer disposed on a proper portion of the sheet 29).

Since the tip of the stylus is pyramidal, if the stylus cuts deep into the sheet 29, the area of a concave portion is large and the area of the remained portion of the sheet 29 is small. In other words, that corresponds to a high-light portion of the photograph document 28. On the other hand, if the stylus cuts shallowly, the area of the concave portion is small, the area of the remained portion is large, and that corresponds to a shadow portion of the photograph document 28. Thus, an engraved image with density gradation, such as a face photograph, is formed.

The number of lines in the direction of the reciprocation movement of the engraving pedestal 24 is determined by adding a periodical intermittent movement in accordance with the desired number of lines and the speed of the reciprocation movement of the pedestal to the up and down movement of the stylus in accordance with the shades.

When a line is cut in a reciprocation movement of the engraving pedestal 24, the engraving head 22 and the scanning head 21 connected to the engraving head 22 through a lateral transport lever 27 are laterally moved by a pitch in accordance with the number of lines. Then, another line is cut by a reciprocation movement of the engraving ped-

estal 24.

According to such operations, it is possible to cut the surface layer at a proper portion of an optional face photograph display sheet 12 (the synthetic resin sheet 1) or a portion of the colored engraving base layer 2 buried in the sheet 12 and to produce an engraved image or a black and white shaded image of an optional face photograph on the photograph document 28.

The kind of the synthetic resin sheet 1 forming the face photograph display sheet 12 is particularly not limited, the sheet may be made of a conventional plastic material, such polyvinyl chloride resin, polyolefine resin or the like.

Furthermore, as a coloring agent in the paints or the ink composite used to mount the colored engraving base layer 2, a conventional inorganic pigment, a conventional organic dye or pigment or the like can be used.

As described above, according to the engraved face photograph display sheet, the face photograph display sheet and the certificate for use with the sheets, even if the attached photograph is exchanged for another photograph, since it is impossible to exchange the engraved face photograph, which is a black and white shaded image, of the present invention, identification can be easily and certainly performed. Therefore, it is possible to extremely effectively utilize an identification notebook, such as a passport, a certificate and so on.

Claims

1. An engraved face photograph display sheet adapted to be collated with an identification face photograph, comprising;
   a synthetic resin sheet, and
   an engraved face photograph corresponding to said identification face photograph and having density gradation, said engraved face photograph being engraved on a surface layer of said synthetic resin sheet.

2. A face photograph display sheet adapted to be collated with an identification face photograph, comprising;
   a synthetic resin sheet,
   a colored engraving base layer buried in said synthetic resin sheet, said base layer forming a smooth plane with said syntehtic resin sheet,
   a face photograph corresponding to said identification face photograph and having density gradation, said face photograph being engraved on said colored engraving base layer.

3. A certificate comprising an engraved face photograph display sheet according to claim 1.

4. A certificate comprising a face photograph display sheet according to claim 2.

5. A certificate according to claim 3 or 4, wherein said certificate is a passport.

FIG.1

FIG.2

FIG.3

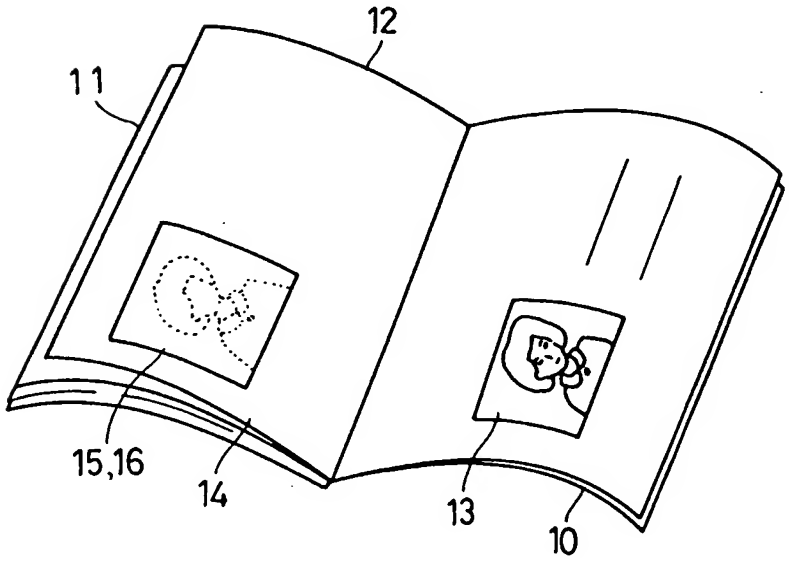
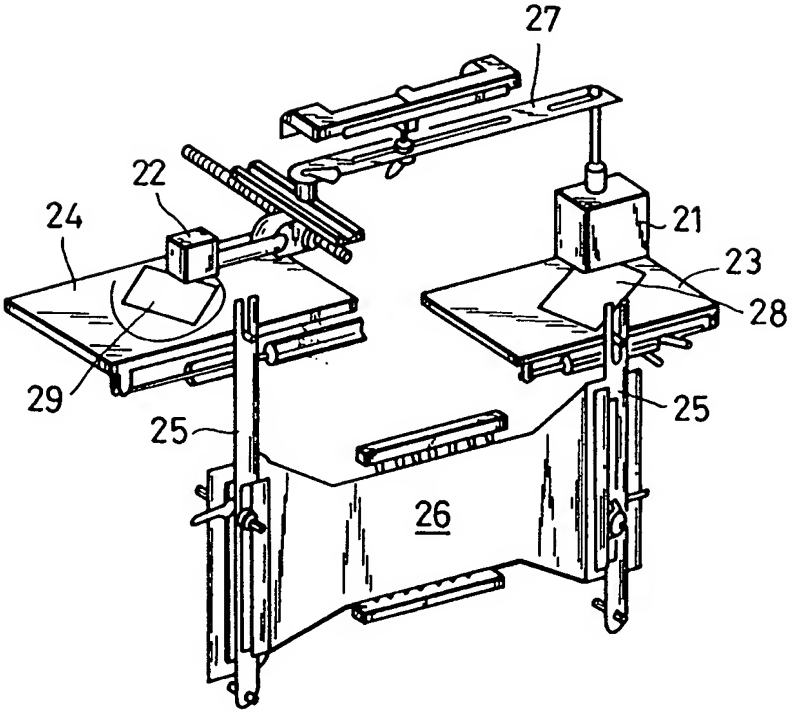


FIG. 4



European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 40 1958

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	EP-A-0 113 228 (MCCORQODALE) * page 16, line 19 - page 17, line 34; figures 2A,2B *	1,2	B42D15/10
A	US-A-2 395 804 (DE GRUCHY) * page 2, column 2, line 43 - line 54; figure 1 *	1,2	
A	EP-A-0 372 837 (PMI DATA) * column 5, line 2 - line 17; figure 2 *	1,2	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5) B42D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	28 FEBRUARY 1992	EVANS A.J.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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& : member of the same patent family, corresponding document

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